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ABSTRACT

This report stresses the need for behavioral analysts to become more responsible in "setting" behavioral objectives in educational and therapeutic settings. Traditionally, behavior analysis concentrated on how behavior is learned and how it can be taught, but not on which behaviors should be learned. Four steps are outlined in the analysis process, the first having to do with determining what behaviors are needed, and the other three having to do with the planning, implementation, and evaluation of behavior change procedures. Applied behavioral analysts, perhaps because of the laboratory origins of their approach to problems, have often ignored the processes and issues involved in "setting" behavioral objectives. Suggestions are made regarding how behavioral analysts can become knowledgeable, skilled, and responsible through professional identification, training programs, and research and professional literature. A preoccupation with diagnosis is not generally recommended for analysts, although a greater concern for this aspect of the field is indicated. (Author/PC)

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WHO DECIDED THAT WAS THE PROBLEM?

TWO STAGES OF RESPONSIBILITY FOR APPLIED BEHAVIOR ANALYSTS

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Recently I was vividly reminded of a problem in applied behavior analysis that I believe has plagued us for years, and one that we need to recognize if we are to conduct ourselves responsibly in the various human services we are trying to perform. A bright, conscientious, graduate student of mine was interested in doing his thesis in a program for severely maladjusted children, and he had an idea to propose to me. He wanted to teach cursive writing to a rather bizarre and retarded child in the program. I knew something about the child and was rather surprised that he selected cursive writing skills, since the child could not read (except his name), print, or even reliably identify all the letters of the alphabet. I asked "Who decided that was the problem to work on next?"

That problem had been selected in a three-way conference between the child's teacher, a behavior modifier with several years' experience in the program; my graduate student, who certainly must be considered a behavior analyst; and a psychologist in the program who was also trained as a behavior analyst in our Department (and had been employed as a behavior analyst for two or three years). I do not know what processes they went through to determine what problem should be attacked next, but their rationale for choosing the skill deficit of cursive writing was that they thought "It would be neat if he could write." They felt it would be efficient to omit the step of teaching him manuscript writing, though there was no mention of any research showing that this omission is an efficiency.

In questioning their selection of cursive writing, I inquired about skills the boy had in various areas of development. I found that he could not color within boundaries proficiently, could not draw easily recognizable pictures, could not tie his shoes, spoke in complete sentences only if prompted, could not carry on even simple conversations, never initiated play with peers, never engaged in cooperative play, did engage in parallel play sometimes if others initiated it, and could imitate few gross motor acts accurately. I doubted that the child had the prerequisite skills to learn cursive writing; and if he learned to write, I doubted that it would be a functional skill for him (except in a very restricted sense).

In addition, I felt uneasy about cursive writing as the next behavioral objective because in general it seems wise to program the development of

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children's (or retarded people's) skills so that they keep approximately the same profile, across the various social and physical skills, as is typical of most children's development, unless one is systematically investigating alternative sequences of development. To attempt to teach this particular child cursive writing now appears to run two risks in this regard: (1) it might make an already unusual child even more unusual (somewhat like the "idiot savant" who has one remarkably well developed skill and is otherwise developmentally retarded), so that he would likely be less socially acceptable to others, and (2) it would likely result in other persons' expecting too much of the child in some areas of his development, and thus in their failing to teach him important skills.

I felt chagrined that we had not done a better job of training the two behavior analysts involved. The student's thesis will involve gross motor imitation, not cursive writing.

The problem I wish to illustrate is also evidenced clearly in another true story.[1] A behavior analyst was given responsibility for the young man with a Ph.D. in biology who had developed hysterical blindness and lost his university teaching position. The behavior analyst was particularly interested in studying the aversive control of behavior, so he constructed some laboratory apparatus with which he could make electric shock contingent upon the young man's failure to make an avoidance response that required a gross visual discrimination. Then as the subject became proficient at avoiding the shock under one discrimination problem, the problem was made more subtle and complex.

This may sound reasonable until we look at more facts of the case. The biologist had great difficulty getting through graduate school, the teaching job he had lost was his first position, he had held it only a few months when he became "blind," he had demonstrated a high level of anxiety about his work, and he had always shown an unusual amount of dependent behavior.

It would seem that the man's problem was much more than hysterical blindness, and involved such things as his job competency, his own evaluation of his job performance, the achievement goals he set for himself, and certain kinds of dependent behavior under stress. Most clinical practitioners, upon finding that such a case was dealt with by only addressing the blindness (particularly with an aversive control procedure, in which the man could either avoid work or avoid shock, but not both, except by termination of the treatment), would probably ask, "Who decided that was the problem?" Unfortunately for the young biologist, he became increasingly anxious as his visual discrimination improved, and he rather suddenly terminated the treatment. That was the end of the behavior analyst's involvement, and I do not know the ultimate outcome of the case.

THE GENERAL PROBLEM

The problem has to do not only with what skills and knowledge the behavior analyst brings to his applied work but also with his sense of responsibility for the different steps of the process in which he is involved. All education and therapy could be described by a four steps depicted in Table 1, which can be summarized as (1) selection of behavioral objectives, (2) design of a program for achieving the objectives, (3) implementation of the program, and (4) evaluation.

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[1] The specific facts have been changed to avoid embarrassment to friends whose work I generally admire.

Table 1. A Model of Education and Therapy

Step 1. Determination of what behaviors (and whose, which is not always as it seems) need establishing, strengthening, maintenance, weakening, or elimination. This step might include, as sub-steps, determination of what kind of information is needed and how best to get it, arranging for opportunities to get the relevant information (e.g., observing, interviewing, testing, referring to other experts), getting the information (as described by Kanfer and Saslow, 1969), watching for unexpected or otherwise significant information, and integrating the information into a set of behavioral objectives.

Step 2. Determination of how to achieve those objectives effectively, economically and humanely. This step might include, as sub-steps, selection or designing of a setting for the learning, selection or designing of tasks and materials, sequencing of tasks and materials, determination of consequence contingencies, determination of who will implement aspects of this program, and determination of how its effects will be evaluated.

Step 3. Implementation of the program designed.

Step 4. Evaluation of the program's effects, and recycling to Steps 1 and 2, as needed. This evaluation is best done continuously during the program, not as a distinct fourth step after the program is over (or even at infrequent times).

of the program's effects.[2,3] The problem being highlighted in the present analysis is that we behavior analysts, though generally outstanding at Steps 2 through 4, often seem not to appreciate the importance of Step 1. It appears that we frequently lack the skills to perform Step 1 ourselves and yet sense too little responsibility to see that someone else does the job competently.

A competent, responsible performance of Step 1 appears to require that a professional have most or all of the following characteristics, as they apply to the particular type of behavior he is dealing with:

1. A sense of responsibility for the learner's overall, long-term welfare, including his safety, comfort, happiness, freedom and self-satisfaction.

2. A similar sense of responsibility to protect and promote the welfare of society while dealing with the target individual(s).

3. Knowledge or hypotheses regarding what behaviors "should" be present (assumedly those, within his discipline's purview, that will promote #1 and #2 above). Different human service professions vary greatly in the objectivity of their bases for their respective bodies of lore regarding what behaviors are desirable and in what order they might best be taught. This will be discussed further below, under research implications.

4. Skill at sensitive, well-directed observation and at creating situations (including interviews, tests, etc.) in which potentially significant behavior will be emitted for observation.

But development of these characteristics requires training, and characteristics 2 and 3 are likely to be developed only through training in some specialty other than applied behavior analysis, specialties such as speech pathology, orthopedic rehabilitation, marital therapy, school psychology, and those very general specialties; clinical psychology, social work and psychiatry.[4] And when the

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[2] Any of these may overlap in time, and it is common for behavior analysts to carry out Step 4 continuously during Step 3 and even 2.

[3] A step preliminary to Step I has been omitted, because it is usually a diffuse, implicit process that would be difficult to describe as "a step" in education or therapy though it governs all education and therapy. It is the assuming of certain kinds of behavior to be culturally or personally desirable, and others to be less desirable. Thus, before one elects to strengthen, say, independent, rational thinking on the part of a child or adolescent, one must assume that a society functions better, overall if its members are relatively rational and independent in their thought. In some nations this assumption would not be made. This example is extreme, but subtler assumptions about what is "good mental health" and the like would not be so universally accepted among professionals or in the society at large. One can readily think of examples in the areas of sexual behavior, drug consumption, and reliance on scientific data.

[4] An exception may be the behavior analyst whose only applied work is training others in behavior analysis. His specialty might be considered to be behavior analysis alone. However, he may be likely to promote in his students the attitude that behavior analysis is all they need to know, which would perpetuate the problem presented in this paper.

characteristics have been developed, there must still be the necessary discriminative stimuli and incentives for exhibiting the characteristics in one's professional work. However, these cues and consequences tend to be minimal among behavior analysts, probably as a natural outcome of the unique historical development of applied behavior analysis.

HISTORICAL ROOTS OF THE PROBLEM

Applied behavior analysis had its origins in the laboratory. Many basic principles describing how behavior is controlled, and numerous techniques for controlling behavior were discovered and elaborated in laboratory research with lower animals and humans. These principles and techniques were then applied to the changing of more significant human behavior in non-laboratory settings.

This laboratory background has been a source of considerable strength to applied behavior analysis. First, it gives the behavior analyst a conceptual scheme (called learning theory or behavioral principles) that allows him to think of behavior and its causes in a much more valid way than his predecessors,[5] thus making it more likely that he will succeed in his attempts to engineer behavior (e.g., Allen, Hart, Buell, Harris, and Wolf, 1964; Williams, 1965; Haughton and Ayllon, 1965; Madsen, Becker, Thomas, Koser, and Plager, 1968; Hawkins and Hayes, in press). Second, the technology developed in the laboratory for engineering behavior often has proved directly applicable to significant human behavior, so the behavior analyst has readymade tools for effecting behavior change. One of the more notable examples might be shaping, a technique that has been used to re-establish speech in psychotics who were mute for decades (Sherman,1965) to develop sociability in a withdrawn nursery school child (Allen, Hart, Buell, Harris, and Wolf, 1964), to increase the loudness of a shy sixth grader's speech (Schwarz and Hawkins, 1970), and to solve many other problems that had been resistant to change. A third advantage of having roots in the laboratory is that the behavior analyst tends to be very optimistic about his ability to engineer behavior, being accustomed to having relatively complete control over the environment, and even the total experimental history, of his laboratory animal. Finally, the laboratory background results in the behavior analyst's being very likely to objectively measure the dependent variables he is interested in; and, further, he is likely to carry out his environmental manipulations in a manner that permits him to verify whether these manipulations are really the cause of whatever behavioral changes occur (Baer, Wolf and Risley, 1968). This kind of expiricism and accountability promise to result in continuously improving behavioral technology (Risley, 1969) and constitute a monumental improvement over the practices of others in the helping professions.

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[5] The relativity of this statement should be noted. I do not believe we can say that the behavioral scheme is valid and others not valid. It is more likely the case that the behavioral principles discovered to date from experimental research in the laboratory constitute a very sizeable improvement in validity over other theoretical frameworks, at least in conceptualizing most behavior. This higher level of validity seems to be an outcome of a "natural science," atheoretical approach to the study of behavior (Skinner, 1954; Bijou and Baer, 1961; Bijou, 1963).

Such an approach also appears to promise a continously increasing validity of our understanding of "how behavior works," as opposed to a succession of fads in theory, treatment methods, and other educational methods.

But the laboratory origins of applied behavior analysis may also have certain disadvantages. In most laboratory research the experimenter is interested in investigating the effects of certain environmental factors on behavior; not on a certain behavior, but just on "behavior." The particular response measured is selected not for its high social value, its facilitating of further learning, or its maladaptive character. The response is selected on the basis of its being easy to measure, being easy to condition (in that particular species), and perhaps having the potential of occuring at a high rate. Thus the experimenter in the laboratory has a strong interest in particular independent variables but is less likely to have an interest in particular dependent variables. For example, Thorndike and others have studied the learning of nonsense syllables in humans, Hull and others have studied maze-running in rats, and Skinner and others have studied bar-pressing in rats and key-pecking in pigeons. Even when human subjects are used, the response is likely to be something like marble-dropping or lever-pressing. Those responses are all selected largely for reasons of expediency rather than because of their significance to the species in its natural environment. This is as it should be, for only through such an approach has it been possible for us to learn so much about"how behavior, in general, works."

As behavior analysts left the laboratory to deal with significant human behavior, they brought their expertise with them. Their outstanding ability to manipulate environmental variables has resulted already in remarkable achievements in a wide variety of endeavors involving human behavior. They might be characterized as experts on the independent variables involved in human behavior (or at least on a number of powerful ones). But it may be time for behavior analysts to consider their expertise on the dependent variables, their ability to determine what behavior is needed by various learners in various settings.

When anyone in a human service profession decides to change a particular behavior it is, of course, because some person or some process has led him to that particular behavior as the target. But when that professional is a behavior analyst it is very likely that he had little involvement in the process that determined what behavior was desirable and adaptive. For example, in offering training in behavior modification to groups of parents a behavior analyst may take the attitude that it is solely the parents' responsibility to determine the behavioral goals for their child (Walder, Cohen and Daston, 1967). Such an attitude certainly makes the job of group training easier, for one can concentrate on behavioral theory and/ or technology alone.

But it is important that behavior analysts at least appreciate the significance of Step 1 in the behavior change process, and realize the skill and humane considerations that are frequently involved. Would it be appropriate, for example, to offer training in behavior modification to an unselected group of prison guards who are then never monitored by the behavior analyst, or would the behavior analyst sense a certain lack of sophistication on the part of the guards in selecting appropriate behavioral objectives? Should the same question be raised regarding training mental hospital attendants who then go unmonitored? Even in the case of parents, who certainly have no systematic training for this very important job (Hawkins, 1971 and 1972; McIntyre, 1973), behavior modification training might be questioned.

Certainly behavior analysts must at least recognize the limitations inherent in such programs as the group training of parents. Parents have little or no systematic training regarding either desirable behavioral objectives for their offspring or methods for achieving these objectives. When given training

only in how to modify behavior, with no guidance whatever regarding selection of behavioral objectives (an infrequent approach, I suspect, because behavior analysts tend to very humanitarian, unlike the illusion conjured up by their detractors), it is likely that parents will select only obvious target behaviors that they find annoying or embarrassing. There is some support for this prediction in Berkowitz and Graziano's (1972) observation that results from most parent training programs in behavior modification emphasize the reduction of excessive behaviors (especially aggression, hyperactivity and disobedience) rather than the remediation of behavioral deficits.

The issue raised recently by Winett and Winkler (1972) is relevant here. Although teachers and school administrators have extensive training for their work---training that particularly emphasizes the philosophy and purposes of education---when given training in applied behavior analysis they often apply their new technology only to the achievement of relatively trivial and perhaps even counterproductive objectives, such as sitting still, being quiet and being obedient to the teacher's every whim. As Winett and Winkler suggest, behavior analysts have a genuine responsibility in the process of selecting objectives, even in the context of a system that would be expected to be competent to select its own objectives wisely, with appropriate priorities.

PROBABLE IMPLICATIONS OF THE PRESENT ANALYSIS

So what am I advocating? A return to "the good old days" of psychological and psychiatric diagnoses? Of course not. We don't need the Rorschach, the TAT and the Bender-Gestalt. We don't need the assessments all conducted in offices instead of the real world. We don't need the long descriptions of irrelevant personality traits, impulses, wishes, conflicts, anxieties, latent tendencies, hostile feelings, guilt feelings and the like, that somehow said nearly the same thing about everyone and never said what John Doe's problem was or what might be done about it. What I believe we do need is to first recognize our limitations and then work to see that we and those we train do become more competent and responsible regarding Step 1 in the educational or therapeutic process. The means for achieving this can be found in our professional conduct as applied behavior analysts, in our training programs, in our research efforts, and in the content and format of our professional literature. These implications will be discussed in that order.

Professional Conduct

The first implication I see for our professional conduct is that it probably is advisable for each applied behavior analyst to ally himself with one or more professional groups <u>besides</u> his fellow behavior analysts. That is, I suspect each of us should consider himself a school psychologist, clinical psychologist, special educator, speech pathologist, retardation expert, or the like. Like Horowitz (1973), I believe we should read other literature besides behavior analysis literature and listen to other people besides behavior analysts.

Behavior does not occur in the abstract, it comes from a particular individual in a particular setting. If we isolate ourselves from consideration of the issues, awareness of the technology and knowledge of the values extant among the non-behavior analysts in the fields where we are doing our work, I think we limit our own individual development and limit the speed with which an empirical approach to planning and problem-solving will be accepted and adopted.

The second professional implication is more complex. It has to do with two different levels of responsibility in our professional work, one of which we often ignore.

It is possible for a behavior analyst to be a kind of free-lance generalist, on occasion, applying his conceptual skills and technological knowledge to a wide variety of setting-learner-behavior combinations. Many of us have had experience at serving as a consultant (or researcher) in some area that we know very little about, and some of us even get full time jobs in such areas. Perhaps because we bring with us an empirically-based conception of human behavior that is so much more valid than other conceptions, and because we also have the empirical attitude and experimental skills to continue discovering further information about behavior, we have often managed to be of considerable value in these "foreign lands." But in these "foreign lands" we are typically valuable in only a reactive way. If someone else tells us what they see as the problem, we can sometimes react with ingenious solutions. But they must identify the problem; they know much better than we what behavior "should be" exibited by the learner.[6]

It is important that we recognize the two stages of responsibility involved here, and recognize further that we are accepting only one of them. There is the responsibility for Step 1, which is being carried by the on-site expert; and there is responsibility for Step 2, which is being carried by the behavior analyst. Once we have recognized the two responsibilities, we can attempt to realistically assess the following three factors:

1. The on-site expert's competence for Step 1, including his ethical values regarding what behavioral objectives are desirable.

2. Our own competence for Step 1.

3. The amount of responsibility we are willing to accept for Step 1.

After deciding what responsibilities one has the competence for and which ones one is willing to accept, there is the obligation to assure that all other parties have approximately the same view of each person's responsibilities. Typically this can be done by simply making it clear to what aspects of which steps we are addressing ourselves and reminding others what aspects are still their responsibilities. For example, in a parent training group one might point out to parents that neither the child no his natural environment will be observed, and thus that sensitive observation and priority-setting by the parents (and perhaps the child) will be the primary means of accomplishing Step 1. Then the behavior analyst points out that he

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[6] Actually, this varies greatly from one field to another. Some have much more highly specialized knowledge than others and a much more objective basis for it.

will make some general suggestions to guide the parents--such as the suggestion that they consider whether their expectations are reasonable or the suggestion that they look for skill deficits as well as behavioral excesses--and will try to raise pertinent questions about their goals occasionally (or, better, encourage other parents to raise them), but that most of the responsibility for setting goals will continue to be theirs.

Training

Admissions. It is my subjective impression that many of the best behavior analysts (most responsible, most effective in the applied setting, and possibly most likely to do significant applied research) coming out of our program at Western Michigan University are people who had previous training in some area other than applied behavior analysis, be it speech pathology, clinical psychology, early education, social work, or one of the many other human service disciplines. These people have often already acquired the four characteristics indicated above as important in assessment of behavior, though much of their knowledge about what behavior is desirable can be improved in objectivity and precision; and those with clinical psychology, counseling, and social work backgrounds usually have a great quantity of vague, misleading and erroneous concepts about behavior that they have to sort through and largely discard (but they still tend to have characteristics 1,2, and 4). We should probably continue to encourage people with strong backgrounds in these other disciplines to bring their expertise with them, evaluate it in the light of the natural science concepts they learn with us, and add our behavioral engineering technology to their expertise.

Program content. An alternate way of phrasing the main thrust of the argument in this paper is that training in behavior analysis is not enough. One does not analyze or engineer behavior in the abstract, there is always a setting, a learner, and certain behavior. Various combinations of setting, learner and behavior constitute the basis for the various human service professions and certain academic disciplines, such as physical therapy, counseling, elementary education, human development, speech pathology and therapy, community psychiatry, family therapy, school psychology, psychiatric social work, or blind rehabilitation. Each discipline implies certain settings, learners with certain characteristics, and a focusing on certain kinds of behavior (though some discipline's names are much more definitive than others).

It is questionable whether there ever should be a program that claims to train people in applied behavior analysis alone; because either that leaves the trainee with no expertise for work in a particular setting with a particular type of subject or particular kinds of behavior, or else it attempts to train him as a behavior analysis generalist, who knows something about several (certainly not nearly all) settings, types of subjects, and kinds of behavior, but does not know much about any of them. In addition, he seems not to acquire the needed sense of responsibility (characteristics 1 and 2, above) or the sensitive observing skills(characteristic 4) necessary for identifying behavioral objectives. As a final product, he is likely to be deficient in all four of the above characteristics. [7]

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[7] To a large extent, this is probably what Horowitz (1973) was saying in her plea for less isolation of behavior analysis from other disciplines. Krantz' (1971) article on the isolation of operant conditioners is also relevant, but was not as oriented toward issues of an applied nature.

What are the alternatives? A few are obvious. First, the training in applied behavior analysis can take place wholly within a department organized around a particular discipline. Of course many training programs believe they are accomplishing this when they have their token behavior modifier who teaches one or two courses in behavior modification and then sends the student on to others who teach him an eclectic pot pourri of sense and nonsense. But there are programs seriously working at adopting a behavior analysis view throughout, yet without discarding the valid (or at least reasonable) knowledge and skills already available in their discipline.[8]

Second, a department as a whole can have a behavior analysis orientation and have within it two or more programs of training oriented toward particular types of setting-learner-behavior combinations. For example, a behavior analysis psychology department might have within it a school psychology program, a retardation program, and a community psychology program. Of course the four characteristics of a professional competent in assessment, listed earlier, will be developed in the trainees only if such training is taken seriously, and in so inclusive a field as community psychology, particularly, this would be a substantial task.

Finally, a department offering excellent training in behavior analysis but having too few resources to also offer good training in certain disciplines where the behavior analysis knowledge might be applied, could arrange a joint training program with another department. For example, a joint program of parenthood education might be arranged between a psychology department and a department of child development, or a joint program in aging might be arranged between two or three departments.

Research

It is often asserted that behavior modification or behavior analysis does not tell us what behavior to modify, but only how to modify it. Unfortunately, this may imply to many people that behavior analysis cannot tell us what behaviors are desirable. This appears questionable. For example, take Ayllon and Azrin's (1968) "relevance of behavior rule," which states that one should teach behavior that will be functional for the individual after he leaves the institution, school, clinic, or other formal training situation. While this is simply a logical assertion on the part of these two behavior analysts, and perhaps not an empirically verified fact, experimental analyses could readily be conducted to verify that assertion. One could experimentally determine what specific behaviors were highly relevant in the natural environment and what their function was, with the result that the setting of behavioral objectives in educational and therapeutic programs would be based on an experimental analysis rather than on educational, mental health, and management theory or guesswork. At that point behavior analysis would certainly be telling us what behavior should be learned, not just how it can be learned.

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[8] The Special Education Department at California State College, California, Pennsylvania, is a department using this approach.

This may seem like a monumental task, but if we look carefully we find that many of our studies already have told us much about what behaviors parents, teachers and therapists should not emit (e.g., Harris, Jonston, Kelly and Wolf, 1964; Williams, 1965; Allen and Harris, 1966; Madsen, Becker, Thomas, Koser and Plager, 1968; Hawkins and Hayes, in press) and even more about behavior that they can emit that increases their effectiveness. What we are almost totally lacking is empirical data on what these parents, teachers and therapists should be teaching their children, students and clients. But such data can and should be obtained.

Several other kinds of research related to setting behavioral objectives are probably needed. One kind has to do with the interrelationship between various responses. An example of this type is a study by Sajwaj, Twardosz, and Burke (1972), in which they monitored several different behaviors while modifying one. They discovered that responses one would expect to be unrelated actually were functionally related, which might suggest that we should not be as confident as we typically are about the likely or unlikely side effects of our interventions. A second example is a study by Nordquist (1971), in which he showed that eliminating the oppositional behavior of a child during the day resulted also in elimination of bedwetting at night. It is possible that with many children who are enuretic, the bedwetting is simply one form of oppositional behavior (a result that, if true, would surprise few non-operant clinicians). But much more research would be required before any such conclusion could be drawn, and even then it would be helpful to obtain the actuarial data that would permit prediction of the success of a treatment based on that hypothesis.

This suggests a second type of research on the dependent variables of applied behavior analysis. Some behavior-change efforts are very expensive, and as cost-effectiveness analyses become more common over the next few decades, it will become more important for us to be able to predict the effectiveness of proposed programs. But reasonably accurate prediction is only possible if one has discovered predictor variables that correlate highly with outcomes from the type of behavior-change program proposed. Thus, in order to set behavioral objectives and priorities realistically, it will be helpful to state the probability of our success, given a particular budget and time frame. This requires extensive correlational research.

As a third type of research, we need normative studies that will allow us to objectively answer such seemingly simple questions as "How many eight year-old boys still wet their beds two or more times per month (and thus, should a boy's parents be upset that he wets his bed twice a month)?" "What conversational behaviors tend to keep people interested in talking with someone (and thus, perhaps, what might I teach a withdrawn, depressed person; or what behavior might I assess for and teach school children)?" or "How frequently do adults use algebraic concepts or procedures in their daily lives (and thus, how important is it to teach algebra to all school children)?" In the absence of data, such questions continue to be answered by hypothesis and simple assertion, sometimes at considerable financial or human expense.

The final type of needed research on the dependent variables that occurs to me is the experimental study of prerequisite skills. This would be an experimental analysis of the efficiency of a person's learning skill H when skills E, F, and G, which logically appear to be prerequisites to H have not been learned. Through this and related types of studies, we can not only discover much about what sequence of learning will be most efficient but also about the nature and function of some skills that we do not understand very well.

Professional Literature

Comparison of the contents of the Journal of Applied Behavior Analysis (JABA) with the contents of other behavioral journals dealing with applied work suggests that the other journals devote more space to problems involved in Step 1 of the educational model presented earlier. In particular, the other journals contain a modest number of articles presenting possible conceptual analyses and assessment tools that have been found useful in determining the nature of a particular type of problem. For example, Hersen (1973) presents a critical review of several measures of fearfulness and the research relating to them, Carter and Thomas (1973) present an interesting system for determining the specific deficits and excesses in the interaction between a husband and wife, and Holland (1970) presents an outline useful in interviewing parents of children with adjustment problems. It might be argued that any one of these articles would be of interest to only a small fraction of the readers of JABA. This may be true, but it may be as much a limitation in the nature of JABA as it is in the nature of the articles.

JABA is a general journal presenting developments in work with the retarded in institutions, work with parents of essentially normal children, work with speech problems of cleft palate children, work with adults who are out of jobs, work with institutionalized psychotics, work with teachers in general education and an unlimited number of other possibilities. This kind of journal is needed because methods developed in one field of application are often at least partially generalizable to other fields; but it appears that such a journal inevitably encourages primary interest in independent variables, as though behavior occurred in the abstract. In addition to developing greater expertise with independent variables, behavior analysts need to be encouraged to conduct research oriented toward better understanding of dependent variables (as suggested above), to develop tools for assessing behavioral needs (including tests, which are simply planned, standard, stimulus situations), and to raise ethical, professional and programmatic issues regarding work in a particular type of setting or with a particular type of population. This calls for special interest journals, and I propose that any further journals established by behavior analysts be of this type.[9]

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[9] There is considerable validity in arguing instead for behavior analysts publishing in existing special interest journals. This could help to interest others in a more emperical approach to their area of interest, and it would certainly increase the behavior analyst's exposure to the research, thought, and other activities of non-operant professionals--an outcome which many of us, in our less arrogant moments, admit would improve our own competance.

SUMMARY

It has often been asserted that behavior analysis is a conceptual framework and a technology that tells us much about how behavior is learned and how it can be taught, but little about what behavior should be learned. While it may be true that behavior analysis tells us little about what should be taught, this does not mean that the behavior analyst has no responsibility regarding the issue of what should be taught.

Four steps involved in all education and therapy were outlined, the first having to do with determining what behaviors are needed, and the other three having to do with the planning, implementation and evaluation of behavior change procedures. It was suggested that applied behavior analysts, perhaps because of the laboratory origins of their approach to problems, have often ignored the processes and issues involved in setting behavioral objectives and accepted no responsibility for them. While this is an appropriate mode of professional conduct in some contexts, it was suggested that the behavior analyst at least has the obligation to recognize the limits he is setting on his responsibilities and be sure that others recognize and accept them.

Suggestions were also made regarding how behavior analysts, as a group, can come to be more knowledgeable, skilled, and responsible in Step 1 of the educational or therapeutic process. These suggestions deal with our professional identification, our training programs, our research, and our professional literature.

To the extent that behavior analysts limit their responsibility and interest to independent variables, they open themselves to criticism of irresponsibility and superficiality. While the kind of preoccupation with "diagnosis" that has characterized much educational and therapeutic endeavor would not be a healthy change (and is unlikely in any group that has a powerful technology for changing behavior and the methodology for continuously improving that technology), a greater interest in this aspect of our work appears to be needed.

REFERENCES

Allen, K.E. and Harris, F.R. Elimination of a child's excessive scratching by training the mother in reinforcement procedures. Behavior Research and Therapy, 1966, 4, 79-84.

Allen, K.E., Hart, B.M., Buell, J.C., Harris, F.R., and Wolf, M.M. Effects of social reinforcement on isolate behavior of a nursery school child. Child Development, 1964, 35, 511-518.

Ayllon, T. and Azrin, N. The token economy: A motivational system for therapy and rehabilitation. New York: Appleton-Century- Crofts, 1968.

Baer, D.M., Wolf, M.M., and Risley, T.R. Some current dimensions of applied behavior analysis. Journal of Applied Behavior Analysis, 1968, 1, 91-97.

Berkowitz, B.P. and Graziano, A.M. Training parents as behavior therapists: A review. Behavior Research and Therapy, 1972, 10, 297-317.

Bijou, S.W. Theory and research in mental (developmental) retardation. The Psychological Record, 1963, 13, 95-110.

Bijou, S.W. and Baer, D.M. Child development: A systematic and empirical theory. New York: Appleton-Century-Crofts, 1961.

Carter, R.D. and Thomas, E.J. Modification of problematic marital communication using corrective feedback and instruction. Behavior Therapy, 1973, 4, 100-109.

Harris, F.R., Johnston, M.K., Kelly,C.S., and Wolf, M.M. Effects of positive social reinforcement on regressed crawling of a nursery school child. Journal of Educational Psychology, 1964, 55, 35-41.

Haughton, E. and Ayllon, T. Production and elimination of symptomatic behavior. In L.P. Ullmann and L. Krasner (Ed.). Case studies in behavior modification. New York: Holt, Rinehart and Winston, 1965.

Hawkins, R.P. Universal parenthood training: A laboratory approach for teaching every parent how to rear children. Educational Technology, 1971, 11, 28-31.

Hawkins, R.P. It's time we taught the young how to be good parents (And don't you wish we'd started a long time ago?). Psychology Today, 1972, 6, 28ff.

Hawkins, R.P. and Hayes, J.E. The School Adjustment Program: A model program for treatment of severely maladjusted children in the public schools. In R. Ulrich, T. Stachnik, and J. Mabry (Ed.) Control of human behavior, vol. III Applications in education. Glenview, Ill.: Scott Foresman, in press.

Hersen, M. Self-assessment of fear. Behavior Therapy, 1973, 4, 241-257.

Horowitz, F.D. Living among the ABA's: Retrospect and prospect. Paper presented at 4th annual Conference on Behavior Analysis in Education, Lawrence, Kans., April-May, 1973.

Holland, C.J. An interview guide for behavioral counseling with parents. Behavior Therapy, 1970, 1, 30-38.

Kanfer, F.H. and Saslow, G. Behavioral diagnosis. In C.M. Franks (Ed.) Behavior therapy: Appraisal and status. New York: Mc Graw-Hill, 1969.

Krantz, D.L. The separate worlds of operant and non-operant psychology. Journal of Applied Behavior Analysis, 1971, 4, 61-70.

Madsen, C.M., Becker, W.C., Thomas, D.R., Koser, L., and Plager, E. An analysis of the reinforcing function of "Sit down" commands. In R.K. Parker (Ed.), Readings in educational psychology. Boston: Allyn & Bacon, 1968.

McIntire, R.W. Parenthood training or mandatory birth control: Take your choice. Psychology Today, 1973, 7, 34ff.

Nordquist, V.M. The modification of a child's enuresis: Some response-response relationships. Journal of Applied Behavior Analysis, 1971, 4, 241-247.

Risley, T.R. Behavior modification: An experimental-therapeutic endeavor. Presented at Banff Conference on Behavior Modification, Banff, Alberta, Canada, March, 1969.

Sajwaj, T., Twardosz, S., and Burke, M. Side effects of extinction procedures in a remedial preschool. Journal of Applied Behavior Analysis, 1972, 5, 163-175.

Schwarz, M.L. and Hawkins, R.P. Application of delayed reinforcement procedures to the behavior problems of an elementary school child. Journal of Applied Behavior Analysis, 1970, 3, 85-96.

Sherman, J.A. Use of reinforcement and imitation to reinstate verbal behavior in mute psychotics. Journal of Abnormal Psychology, 1965, 70, 155-164.

Skinner, B.F. Science and human behavior. New York: Macmillan, 1953.

Walder, L.O., Cohen, S.I., and Daston, P.G. Teaching parents and others principles of behavior control for modifying the behavior of children. Progress report, U.S. Office of Education, 32-31-7515-5024.

Williams, C.D. The elimination of tantrum behavior by extinction procedures. Journal of Abnormal and Social Psychology, 1959, 59, 269.

Winett, R.A. and Winkler, R.C. Current behavior modification in the classroom: Be still, be quiet, be docile. Journal of Applied Behavior Analysis, 1972, 5, 499-504.